

## Lower Mechanical Sensitivity in Female Obese Model Following Oral Probiotic Supplementation

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**Background:** Obesity is one of the most obvious appearances of the worldwide epidemic of sedentary lifestyles and excessive energy intake. A lower pain threshold has been proved in obesity both in animals and humans. Among the endogenous factors prompting the obesity, intestinal microbiota has also been proposed to influence pain sensitivity. Probiotics have shown beneficial effects on obesity, but data on their analgesic efficacy is very limited. Hence, this study aimed at investigating effect of oral probiotics on pain sensitivity in female obese mice.

**Methods:** Six-week old female C57BL/B6-F mice were fed with a high fat diet (week 1-4) to make DIO (diet-induced obesity) mice. The DIO mice were then randomly assigned to 2 groups treated with a single daily dose ( $1 \times 10^9$  CFU) of *Lactobacillus Rhamnosus* (test group) or physiological saline (control group) for 4 weeks (weeks 5-8). Sensitivity to mechanical stimulation was assessed by an electronic Von Frey every two weeks throughout the study period.

**Results:** The DIO mice in the test group did not show a significant gain weight after the start of probiotic administration. However the control group maintained a weight rising trend leading to a significant weight difference at week 6, which remained significant at week 8. The test group showed a trend of lower pain sensitivity to mechanical stimulation compared with the control group after two weeks of receiving the probiotic treatment ( $P > 0.01$ ). After 4 weeks of probiotic administration, mice fed with probiotics having a significant less pain sensitivity. ( $P < 0.01$ ).

**Conclusion:** The results of this study confirmed lower mechanical pain sensitivity in probiotic-treated female obese mice. The protective effect of probiotics on nociception circuits could be associated with the weight reduction or anti-inflammatory properties of the probiotics. Translation of this result in humans can potentially suggest a novel therapeutic strategy in pain management of obese individuals.

### Biography:

Fereshteh Dardmeh graduated as a Doctor of Veterinary Medicine (D.V.M.) from Urmia University, Iran in 2012. She then joined the "Laboratory of Reproductive medicine" and Center for Sensory-Motor Interaction (SMI) in the Department of "Health, Science and technology" of Aalborg University, Denmark and got the Ph.D. degree in 2017. She has since been actively involved in teaching and research in the area of reproductive health and medicine with her current studies focusing on Probiotic supplements as a novel strategy in pain management and translational investigations of possible associations between pain, obesity and fertility. Her studies have until now resulted in several abstracts and publications.